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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,626	10/22/2001	Avinash Dalmia	03141-P0376A WWW/DC	5066
24126	7590	04/18/2005	EXAMINER	
ST. ONGE STEWARD JOHNSTON & REENS, LLC			OLSEN, KAJ K	
986 BEDFORD STREET			ART UNIT	
STAMFORD, CT 06905-5619			PAPER NUMBER	

1753

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,626

Applicant(s)

DALMIA ET AL.

Examiner

Kaj K. Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,6,9-11,14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3,5,6,9-11 and 14 is/are allowed.
- 6) ☒ Claim(s) 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Maclay et al (USP 5,716,506).

3. Maclay discloses a gas sensor comprising a substrate 12 containing both an “active sensor” and a “reference sensor” and each sensor would have a sensing electrode 14 and a counter and reference electrode 16. See col. 9, line 64 through col. 10, line 4. Hence, Maclay discloses both a first sensing electrode (i.e. the sensing electrode for the active cell) and a second sensing electrode (i.e. the sensing electrode for the reference cell). Maclay further discloses that each of the sensing electrodes would have a different thickness of electrolytic material. See col. 8, lines 20-34 and col. 10, lines 12-19. Although Maclay does not appear to teach the presence of a common counter electrode, upon further reviewing of claim 16, this examiner realizes it does not require such a common electrode (as the previous examiner interpreted it in the office action of 7/16/2003), but only a counter and reference electrode. Hence any one of the counter electrodes of Maclay would read on the claimed counter and reference electrode of claim 16. The fact that Maclay teaches the presence of more counter electrodes is irrelevant because claim 16 is constructed with open language (i.e. the invention is *comprising* the set forth features) and the presence of additional features would not read free of the claimed invention. Hence, upon

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further review of claim 16, Maclay actually anticipates it. However, see the alternative rejection below.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maclay in view if any of Nankai et al (USP 5,120,420), Liu (USP 4,655,880) or Lin et al (USP 4,828,671). These secondary teachings are all being cited and relied on for the first time with this office action.

6. Maclay disclosed all the limitations of the claim (see above). However, even if the examiner were to interpret claim 16 as requiring a common or shared counter and reference electrode, the concept of a shared counter/reference electrode is old in the art. In particular, Nankai discloses an embodiment where different sensing electrodes share a common reference electrode. See col. 8, lines 5-68. Liu discloses that the common reference electrodes is “preferably” a common reference electrode. See col. 4, lines 66-68. Lin discloses embodiments where the counter and reference electrodes are both separate and shared (compare fig. 1 and 5) and teaches that the shared electrode systems simplifies the sensor. See col. 2, lines 52-63 and col. 9, lines 7-62. This is a simplification both in reducing the number of electrodes (which reduces manufacturing costs), but also reduce the circuit complexity (note how fig. 1 requires six amplifiers whereas fig. 6 only requires four). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of any of Nankai, Liu

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or Lin for the sensor of Maclay in order to simplify the sensor and reduce its manufacturing costs.

Allowable Subject Matter

7. Claims 1-3, 5, 6, 9-11 and 14 are allowed.
8. Indication of the allowable subject matter for these claims has been indicated in previous office actions and will not be reiterated here.

Response to Arguments

9. Applicant's arguments filed 1-27-2005 have been fully considered but they are not persuasive. Applicant urges that Maclay differs from the instant invention is setting forth two counter electrodes in contrast to the three electrodes of claim 16. The examiner acknowledged as much in the previous office action. See paragraph 5 from the previous office action, which has been reiterated above. However, claim 16 is drawn to an electrochemical sensor "comprising" the specified three electrodes. The "comprising" indicates that more electrodes can be present on the sensor and still be within the scope of the claimed invention. The fact that Maclay has four electrodes does not preclude it reading on the claimed invention.
10. Applicant further urges that Maclay does not teach a counter and reference electrode. Rather Maclay teaches just counter electrodes. First, it is unclear what the structural distinction is between a "counter electrode" and a "counter and reference electrode" other than the possible function of the electrode (however, see the discussion below). Whether a given electrode is

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functioning just as a counter electrode or as a counter and reference electrode is merely the intended use of the electrode and need not be given further due consideration.

11. However, even if the examiner were to give weight to these functional terms, the examiner doesn't believe there is any functional distinction between the "counter electrode" of Maclay and the "counter and reference electrode" of the instant invention. In particular, when electrochemical cells consist of a two-electrode configuration, one of the electrodes functions as a sensing or working electrode and the other electrode functions as *both* the counter and reference electrode regardless of whether it is called a "counter electrode" a "reference electrode" or a "counter and reference electrode". This is demonstrated by the relied on prior art. Both Maclay and Nankai refer to this second electrode as a "counter electrode", while Lin calls the second electrode of its cell a "reference electrode". There is no functional distinction between the "counter electrode" of Maclay and Nankai and the "reference electrode" of Lin even though they relied on different term for the electrodes. The only distinction is what they referred to that second electrode as. One possessing ordinary skill in the art would recognize that "counter" and "reference" refer to the same electrode function in a two-electrode cell and hence have no functional distinction. Furthermore, because there is no functional distinction between "counter" and "reference" as utilized by the prior art, there similarly would be no functional distinction between the "counter electrode" of Maclay and the "counter and reference electrode" of the instant invention. The terms "counter" and "reference" only become functionally distinct (albeit still not *structurally* distinct) when the electrochemical cell becomes a three-electrode cell. By "three-electrode", the examiner refers to the use of three electrodes for each independent electrochemical measurement in contrast to the three electrodes of the instant

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invention, which is just two two-electrode cells relying on a common counter and reference electrode. See Liu, col. 6, ll. 60-64. Hence Maclay still anticipates claim 16.

12. With respect to the applicant's arguments concerning the secondary teachings. These arguments rely on applicant's incorrect presumption of a distinction between "counter", "reference" and "counter and reference" as it applies to two-electrode cells like Maclay. Hence, these arguments are similarly unpersuasive.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Thursday from 5:30 A.M. to 3:00 P.M. and on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1753
April 14, 2005



KAJ K. OLSEN
PRIMARY EXAMINER